

Response
Application No. 10/529,145
Attorney Docket No. 063241

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

1-12. (Cancelled).

13. (Currently amended) A route search server for performing road route searches, comprising:

- basic road network storage means for storing road network information;
- congestion information storage means for storing congestion information;
- congestion information processing means for generating congested road network descriptions with prescribed timing based on said road network information stored in said basic road network storage means and on congestion information stored in said congestion information storage means;
- historical congested road network description storage means for storing the latest congested road network description among said congested road network descriptions generated by said congestion information processing means;
- historical congested road network description storage means for storing past congested road network descriptions among said congested road network descriptions generated by said congestion information processing means; and,
- information provision processing means for generating route information by searching road routes from said congested road network descriptions stored by said congested road network description storage means or by said historical congested road network description storage means and from said road network information stored by said basic road network storage means based on route specification information, and providing the route information; ~~and characterized in that,~~
- wherein said route information includes time information indicating the time of generation of the route information, and, when said time information is included by said route specification information, said information provision processing means selects said congested

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road network description at the time indicated by said time information from said congested road network description storage means or from said historical congested road network description storage means, and performs a road route search from the selected congested road network description and from said road network information stored in said basic road network storage means.

14. (Currently amended) The route search server according to Claim 13, ~~characterized in that wherein~~ said information provision processing means generates said route information using map information and text information.

15. (Currently amended) The route search server according to Claim 13, ~~characterized in that wherein~~ said information provision processing means generates, as route information, the shortest route, in terms of either distance or time, from said congested road network description, based on said route specification information.

16. (Currently amended) The route search server according to Claim 13, ~~characterized in that, wherein~~, when congestion information stored in said congestion information storage means is indicated by travel times $t(i)$ for unit routes (i), said congestion information processing means uses average velocities v for each route type to calculate the congestion distances $L(i)$ for each unit route (i) comprised by a congested road network description according to the equation

$$L(i) = v \cdot t(i) \quad [[(1)]]$$

and generates a congested road network description.

17. (Currently amended) The route search server according to Claim 13, ~~characterized in that wherein~~ said congestion information processing means calculates congestion distances $L(i)$ for each unit route (i) comprised by a congested road network description, based on the basic distances $L_0(i)$ of each unit route (i) of said road network information stored in said basic road

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network storage means and on the distances x and/or y of congestion and/or slowdown in each of said unit routes (i) comprised by said congestion information stored in said congestion information storage means, according to the equation

$$L(i) = (L0(i) - x - y) + \alpha x + \beta y \quad [[(2)]]$$

where α is a weighting factor (>1) for congestion, and β is a weighting factor (>1) for traffic slowdowns, and generates a congested road network description.

18. (Currently amended) A route search system, comprising:

a terminal device for specifying routes and requests road information;
a congestion information center for providing congestion information; and,
a route search server for generating route information based on said congestion information from said congestion information center in response to a request from said terminal device and providing said route information to said terminal device; ~~and characterized in that, wherein~~ said route search server is the route search server according to Claim 13.

19. (Currently amended) The route search system according to Claim 18, ~~characterized in that wherein~~ said terminal device obtains current position information from a GPS (Global Positioning System), and uses said current position as the starting position of a specified route.

20. (Original) A route search method of providing route information for a specified route, the method comprising the steps of:

- (A) storing the basic distance $L0(i)$ and type of each unit route (i), as well as the average velocity v for each route type, as road network information;
- (B) obtaining and storing congestion information with prescribed timing;
- (C) generating the latest congested road network description based on said road network information and on said congestion information, with the same or different timing as step (B);

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(D) storing currently stored congested road network descriptions as historical congested road network descriptions, and updating by said latest congested road network description;

(E) calculating the course and time based on said latest congested road network description or said historical congested road network descriptions in response to a route search request, and calculating the distance of said course based on said calculated course and on said road network information, and generating the course, distance and time as route information; and,

(F) adding time information indicating the time at which the route information was generated to said generated route information, and providing said route information.

21. (Currently amended) The route search method according to Claim 20, ~~characterized in that wherein~~, in said step (E), when time information is comprised by a route search request, the congested road network description at the time indicated by said time information is selected from said latest congested road network descriptions or from said historical congested road network descriptions, and route searching is performed.

22. (Currently amended) The route search method according to Claim 20, ~~characterized in that wherein~~, in said step (B), travel times $t(i)$ for each unit route (i) are obtained and stored as congestion information, and that in said step (C), average velocities for each route type are used to calculate congestion distances $L(i)$ for each unit route (i) comprised by the congested road network description according to the equation

$$L(i) = v \cdot t(i) \quad [[(1)]]$$

and the congested road network description is generated.

23. (Currently amended) The route search method according to Claim 20, ~~characterized in that wherein~~, in said step (B), distances x and/or y of congestion and/or slowdown for each unit route (i) are obtained and stored as congestion information, and that in said step (C), congestion

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distances $L(i)$ are calculated for each unit route (i), based on basic distances $L_0(i)$ for each unit route (i) of said road network information and on distances x and/or y of congestion and/or slowdown for said unit routes (i) comprised by said congestion information, according to the equation

$$L(i) = (L_0(i) - x - y) + \alpha x + \beta y \quad [[(2)]]$$

where α is a weighting factor (>1) for congestion, and β is a weighting factor (>1) for traffic slowdowns, and a congested road network description is generated.